

## **REMARKS**

Claims 1-28 are pending in the application. Claims 1-4, 8, 13-16, and 20-22 stand rejected. Claims 5-7, 9-12, 17-19 and 23-28 have been objected to.

Claims 1, 5, 7, 8, 9, 13, 17, 19, 20, 23 and 27 have been amended in this Response. No claims have been added. No new matter has been added. Applicant respectfully requests reconsideration of the pending claims in light of these amendments and the following remarks.

### **I. Claim Rejections Under 35 U.S.C. 103(a)**

In the Office Action dated November 10, 2003, the Examiner rejected claims 1-4, 8, 13-16, and 20-22 under 35 U.S.C. 103(a) as being unpatentable over **Gao** (6,226,596). Claims 1, 8, 13 and 20 have been amended in this response. No new matter has been added. Applicants respectfully submit that this rejection has been traversed.

Claim 1 as amended recites:

In a seismic classification system, a method of generating a classified result which can be recorded or displayed on a workstation display, comprising the steps of:

- (a) receiving at least a first attribute set where the attribute data set includes a plurality of points and a plurality of types of attribute data corresponding, respectively, to the plurality of points,
- (b) generating a first cross plot in attribute space in response to the attribute data on the first attribute data set, and
- (c) generating the classified result in response to the plurality of points on the first attribute data set and the first cross plot in attribute space, the classified result being based on clusters of the plurality of points as plotted in the first cross plot.

No new matter has been added in the amendment. Support for this amendment is found in the specification as filed at page 21, lines 10-30 and at page 12, line 24 through page 13, line 4.

In the Office Action at page 2, numbered paragraph 3, the Examiner states that the **Gao** reference "discloses a seismic classification process where attribute data is received in step 402, the attribute space and conditions are set up in steps 414-418 and in step 420 cross plots such as those depicted in figures 2 and 3 are created. Finally, the classification results are made available in step 422." Applicants do not understand Figures 2 and 3 of **Gao** to be cross plots of attribute data. **Gao** describes Figure 2 as "an example of prior art seismic data used as an input to ... the software of the present invention". (**Gao** at col. 4, lines 9-11.) Similarly, **Gao** describes Figures 3A-3D as "examples of interpretation data produced by the ... software of the present invention," thus Applicants believe that these figures represent the output of the **Gao** software. Applicants note, however, that **Gao** describes cross plots of "various attribute volumes" (that are further discussed in these Remarks) at column 8, lines 4-24. Applicants respectfully submits that there are some differences between the **Gao** reference and claim 1 as amended, in addition to those noted by the Examiner.

First, claim 1 as amended recites in part, step "(a) receiving at least a first attribute set where the attribute data set includes a plurality of points and a plurality of types of attribute data corresponding, respectively, to the plurality of points..." (Emphasis added.) See, for example the instant Specification as filed at page 12, line 24 through page 13, line 4, where both amplitude and frequency attributes are received. **Gao** seems to disclose receiving, not a plurality of types of attribute data as recited by Claim 1 as amended, but only a single type of attribute data, that of amplitude. The Examiner's attention is drawn to **Gao**: the Abstract, column 4, lines 14-22, and 47-54. The amplitude data is received and is then processed using texels to create a Voxel Coupling Matrix, which is used to create or extract a plurality of texture attributes from the amplitude. See **Gao**, col. 4 at lines 42-65.

In **Gao**, the textural attributes are further processed (see col. 7, lines 52-64) and are assigned to colors. The textural attributes are plotted in three dimensional attribute space against each other and volumes are selected for classification, which is done in **Gao** by “selecting the least correlated volumes” (col. 7, line 64 through col. 8, line 14, emphasis added). In contrast, claim 1 of the instant application recites in part “generating the classified result in response to the plurality of points on the first attribute data set and the first cross plot in attribute space, the classified result being based on clusters of the plurality of points as plotted in the first cross plot.” The classification of the instant invention as recited in claim 1 is based on similarity of how the points are plotted in the cross-plot, not “the least correlated volumes” as in **Gao**. Thus, **Gao** teaches away from the present invention in this respect.

As **Gao** does not disclose or suggest receiving a plurality of types of attribute data and does not disclose or suggest the classified result being based on clusters of the plurality of points as plotted in the first cross plot, Applicants respectfully submit that the instant invention as recited in claim 1 is patentably distinguishable from **Gao**. Claims 8, 13 and 20 as amended have corresponding limitations and should likewise, Applicants submit, be patentable over **Gao**.

Claims 2-4 depend from claim 1 and contain all of its limitations as amended. Claims 14-16 depend from claim 13 and contain all of its limitations as amended. Claims 21-22 depend from claim 20 and contain all of its limitations as amended. Accordingly, Applicants respectfully submit that this rejection has also been traversed with respect to claims 2-4, 14-16 and 21-22.

Applicants respectfully request reconsideration of claims 1-4, 8, 13-16, 20-22.

## **II. Allowable Subject Matter**

In the Office Action dated November 10, 2003, the Examiner objected to claims 5-7, 9-12, 17-19, and 23-28 as being dependent upon a rejected base claim. Applicants hereby submit claims 5, 7, 9, 17, 19, 23 and 27 in independent form to include all of the limitations of the base claim and any intervening claims. These claims are thus now felt to be in condition for allowance.

As claim 6 depends from claim 5, claims 10-12 depend (directly or indirectly) from claim 9, claim 18 depends from claim 17, claims 24-26 and 28 depend (directly or indirectly) from claim 23, and because the dependent claims contain all the limitations of the independent claims from which they depend, Applicants respectfully submit that the amendments to the independent claims suffices to make these dependent claims likewise allowable.

Applicants respectfully request reconsideration of claims 5-7, 9-12, 17-19, and 23-28.

## CONCLUSION

It is respectfully submitted that this application, as now amended, is in condition for allowance for the reasons stated above. Applicants respectfully request reconsideration of this application.

This amendment is intended to be a complete response to the Office Action dated November 10, 2003.

Respectfully submitted,



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Enclosures:

1. Transmittal Form.
2. Fee Transmittal and Authorization to Charge Deposit of Account.
3. Fee Determination Record.
4. Petition for Extension of Time.
5. Response and Amendment to Office Action dated November 10, 2003.
6. Acknowledgment Postcard.